

AMENDMENTS TO THE CLAIMS

Claims 1-81 (cancelled).

82. (currently amended): A micro-array evanescent wave fluorescence detection device for detecting the presence of target substances in test samples comprising:

a polymer waveguide core layer;

a polymer waveguide cladding layer in optical contact with said core layer, said cladding layer containing a plurality of nanowells for holding said test samples;

a plurality of micro-fluidic channels in communication with said nanowells, said micro-fluidic channels conveying fluid samples to said nanowells, said micro-fluidic channels located in a separate non-waveguide layer above said polymer cladding layer, said micro-  
fluidic channels coupled to at least one inlet port;

a plurality of optically sensitive fluorescent tags bound to target molecules in said nanowells;

a light source optically coupled to said core layer, said light source creating an evanescent wave in said cladding layer, said evanescent wave causing said fluorescent tags to emit detectable light from said target molecules.

83. (previously presented) : The micro-array evanescent wave fluorescence detection device of claim 82 further comprising polymer linkage groups built into said nanowells, said polymer linkage groups providing attachment of desired capture molecules in said nanowells.

84. (previously presented) : The micro-array evanescent wave fluorescence detection device of claim 82 wherein said polymer waveguide core layer and said polymer waveguide cladding layer comprises polymer sheets.

85. (currently amended) : The micro-array evanescent wave fluorescence detection device of claim 84 wherein said polymer sheets are formed into film strips, each of said film strips having a length, width and thickness.

86. (currently amended) The micro-array evanescent wave fluorescence detection device of claim 85 wherein the width

of said film strips [[comprise width of]] is 8mm, 16mm or 32mm. [[film]]

87. (currently amended) : The micro-array evanescent wave fluorescence detection device of claim 86 wherein said film [[is rolled]] strips are supplied in rolls.

88. (currently amended) : The micro-array evanescent wave fluorescence detection device of claim 82 further comprising an intermediate [[protective]] separate cladding layer located between said polymer waveguide core and said waveguide cladding layer.

89. (currently amended) : The micro-array evanescent wave fluorescence detection device of claim 88 wherein said intermediate [[protective]] separate cladding layer contains a plurality of attachment binding sites, said separate cladding layer passing said detectable light to a detector.

Claim 90. (currently amended) A laminar biosensor comprising:

a top outer non-waveguide support layer containing at least one fluid port;

a fluidics layer below said top outer support layer containing at least one fluidics channel in fluid communication with said fluid port;

a first waveguide cladding layer below said fluidics layer containing at least one micro-cuvette in fluid communication with said fluidics channel;

a waveguide core layer containing at least one channel waveguide core in contact with said micro-cuvette;

a second waveguide cladding layer below said waveguide core layer in contact with said waveguide core;

an excitation light source optically coupled into said waveguide core layer;

whereby, fluid containing samples and optical tags placed in said fluid port is transferred by said fluidics channel into said micro-cuvette where light from said excitation light source enters said micro-

cuvette by means of an evanescent wave in said first cladding layer exciting any of said optical tags binding to target molecules in said micro-cuvette.

Claim 91. (previously presented): The laminar biosensor of claim 90 further comprising a plurality of micro-cuvettes in said first cladding layer.

Claim 92. (previously presented): The laminar biosensor of claim 90 further comprising a plurality of channel waveguide cores in said waveguide core layer.

Claim 93. (currently amended): The laminar biosensor of claim 90 further comprising a non-waveguide bottom supporting layer below said second cladding layer.

Claim 94. (currently amended): The laminar biosensor of claim 93 wherein said non-waveguide bottom supporting layer is optically transparent to light produced by said optical tags.

Claim 95. (currently amended): A micro-array evanescent wave detection device for detecting the presence of target substances in test samples comprising:

a polymer waveguide core layer;

a polymer waveguide cladding layer above said core  
layer and in optical contact with said core layer,  
said cladding layer containing a plurality of  
nanowells for holding said test samples;

a plurality of optically sensitive tags bound to  
target molecules in said nanowells;

at least one fluidic channel in a separate non-  
waveguide fluidics layer above said waveguide cladding  
layer, said fluidic channel conveying said test  
samples into said nanowells;

a light source optically coupled to said core layer,  
said light source creating an evanescent wave in said  
cladding layer, said evanescent wave causing said  
optically sensitive tags to emit detectable light from  
said target molecules.

Claim 96. (previously presented) : The micro-array  
evanescent wave detection device of claim 95 further

comprising polymer linkage groups built into said nanowell, said polymer linkage groups providing attachment of desired capture molecules in said nanowell.

Claim 97. (previously presented) : The micro-array evanescent wave detection device of claim 95 wherein said polymer waveguide core layer and said polymer waveguide cladding layer comprises polymer sheets.

Claim 98. (currently amended) : The micro-array evanescent wave detection device of claim 95 wherein said polymer sheets are formed into film strips, each of said film strips having a length, width and thickness.

Claim 99. (currently amended) : The micro-array evanescent wave detection device of claim 98 wherein the width of said film strips [[comprise width of]] is 8mm, 16mm or 32mm.  
[[film]]

Claim 100. (currently amended) : The micro-array evanescent wave detection device of claim 99 wherein said film [[is rolled]] is supplied in a roll.

Claim 101. (currently amended) : The micro-array evanescent wave detection device of claim 95 further comprising an intermediate [[protective]] separate cladding layer located between said polymer waveguide core and said waveguide cladding layer, said separate cladding layer passing said detectable light to a detector .